

# Missouri River Mainstem System Water Supply

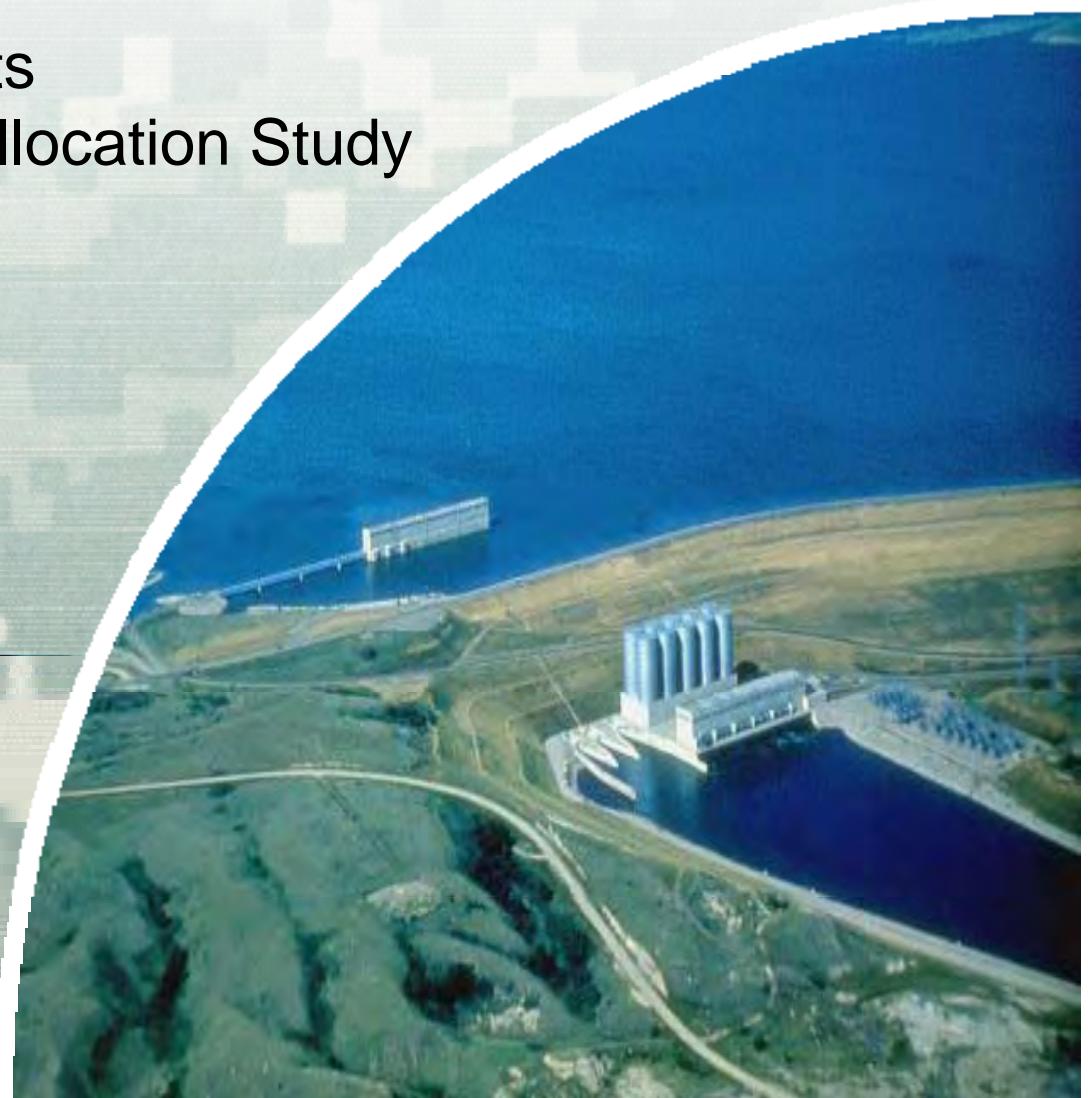
- Five Surplus Water Reports
- Municipal & Industrial Reallocation Study

**U.S. Army Corps of Engineers  
Omaha District**

**Public Meetings**  
August 20-29, 2012



US Army Corps of Engineers  
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## Report Documentation Page

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# Agenda

- Open Forum
- Welcome
- Presentation
- Public Comment



# Presentation

- Part I
  - ▶ Water Supply Evolution in the Missouri River Basin
- Part II
  - ▶ Draft Surplus Water Report Overview
- Part III
  - ▶ Municipal and Industrial (M&I) Reallocation Study



# Presentation

- Part I
  - ▶ Water Supply Evolution in the Missouri River Basin
    - Authorities
    - Previous Condition
    - Current Condition
    - Future Condition
- Part II
  - ▶ Draft Surplus Water Report Overview
- Part III
  - ▶ M&I Reallocation Study



# Water Supply Authorities

## Section 6 of the 1944 Flood Control Act

"Sec. 6. That the Secretary of War is authorized to make contracts with States, municipalities, private concerns, or individuals, at such prices and on such terms as he may deem reasonable, for domestic and industrial uses for surplus water that may be available at any reservoir under the control of the War Department: Provided, That no contracts for such water shall adversely affect then existing lawful uses of such water. All moneys received from such contracts shall be deposited in the Treasury of the United States as miscellaneous receipts."

## Title III, 1958 Rivers and Harbors Act, "The 1958 Water Supply Act"

"SEC. 301. (a) It is hereby declared to be the policy of the Congress to recognize the primary responsibilities of the States and local interests in developing water supplies for domestic, municipal, industrial, and other purposes and that the Federal government should participate and cooperate with States and Local interests in developing such water supplies in connection with the construction, maintenance, and operation of Federal navigation, flood control, irrigation, or multiple purpose projects.

(b) In carrying out the policy set forth in this section, it is hereby provided that storage may be included in any reservoir project surveyed, planned, constructed or to be planned, surveyed and/or constructed by the Corps of Engineers or the Bureau of Reclamation to impound water for present or anticipated future demand or need for municipal or industrial water, and the reasonable value thereof may be taken into account in estimating the economic value of the entire project..."

## Corps Water Supply Guidance and References

Engineer Regulation 1105-2-100 – Planning Guidance Notebook, Paragraph 3-8, Appendix E, Section VIII

(Available online at: <http://140.194.76.129/publications/eng-reg/er1105-2-100/toc.htm>)

Institute of Water Resources "Water Supply Handbook – A Handbook on Water Supply Planning and Resource Mgmt"

(Available online at: [www.iwr.usace.army.mil/docs/iwrreports/96ps4.pdf](http://www.iwr.usace.army.mil/docs/iwrreports/96ps4.pdf))

Water Management and Reallocation Studies Planning Center of Expertise

(Available online at: [www.swd.usace.army.mil/pcx](http://www.swd.usace.army.mil/pcx))





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# Water Supply Evolution

- ASA (CW) Directive
- Reservoir Benefits Study

Agreement Required  
(no charge until study complete)

Interim:  
Easement



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# Water Supply Evolution

- ASA (CW) Directive
- Reservoir Benefits Study

Agreement Required  
(no charge until study complete)

Interim:  
Easement

- 1944 Flood Control Act
- Surplus Water Study

Agreement Required  
(no charge until rulemaking complete)

Interim:  
Easement (existing users)  
Surplus Water Agreement (new users)



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# Water Supply Evolution

- ASA (CW) Directive
- Reservoir Benefits Study

Agreement Required  
(no charge until study complete)

Interim:  
Easement

- 1944 Flood Control Act
- Surplus Water Study

Agreement Required  
(no charge until rulemaking complete)

Interim:  
Easement  
(existing users)  
Surplus Water Agreement  
(new users)

- 1958 Water Supply Act
- Reallocation Study

Agreement Required  
(both temporary and permanent available)

Final:  
Surplus Water Agreement  
(temporary users)  
WSA Agreement  
(permanent users)

# Presentation

- Part I
  - ▶ Water Supply Evolution in the Missouri River Basin
- Part II
  - ▶ Draft Surplus Water Report Overview
    - Introduction
    - Project Background
    - Plan Formulation
    - Plan Implementation
    - Conclusions
    - Recommendations
    - Appendices
- Part III
  - ▶ M&I Reallocation Study



# Draft Surplus Water Report Overview

- **Chapter 1. Introduction**
- Chapter 2. Project Background
- Chapter 3. Plan Formulation
- Chapter 4. Plan Implementation
- Chapter 5. Conclusions
- Chapter 6. Recommendations
- Appendices



# Draft Surplus Water Report Overview

- Purpose of Study
  - ▶ Identify and quantify whether surplus water is available in the project as identified in Section 6 of the 1944 Flood Control Act that the Secretary Army may use to execute surplus water agreements
  - ▶ Determine whether use of surplus water is most efficient method of meeting M&I water needs



# Draft Surplus Water Report Overview

## Section 6 of the 1944 Flood Control Act

“Sec. 6. That the Secretary of War is authorized to make contracts with States, municipalities, private concerns, or individuals, at such prices and on such terms as he may

deem necessary.” ER 1105-2-100, paragraph 3-8b(4), entitled, “Surplus Water” states:

*Under Section 6 of the Flood Control Act of 1944, the Secretary of the Army is authorized to make agreements with states, municipalities, private concerns, or individuals for surplus water that may be available at any reservoir under the control of the Department. These agreements may be for domestic, municipal, and industrial uses, but not for crop irrigation.*

States as miscellaneous receipts.”



# Draft Surplus Water Report Overview

## ■ Definition of Surplus Water

- (1). Water stored in a Department of Army reservoir that is not required because the authorized need for the water never developed or the need was reduced by changes that have occurred since authorization or construction.
- (2). Water that would be more beneficially used as municipal and industrial water than for the authorized purpose that, when withdrawn, would not significantly affect authorized purposes over some specified period.

## ■ Additional Information

- ▶ Prices and terms are as the Secretary deems reasonable, but existing policy for price setting
- ▶ Amounts of water are normally small
- ▶ Contracts for 5-years with option for renewals with updated costs
- ▶ Agreements for Municipal and Industrial (M&I) purposes



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C A N A D A

## OMAHA DISTRICT

ALBERTA

SASKATCHEWAN

MANITOBA

NORTH DAKOTA

FORT PECK

Fort Peck Lake

MONTANA - HELENA

Helena, MT

MONTANA - BILLINGS

Billings, MT

GARRISON

Lake Sakakawea

NORTH DAKOTA

Bismarck, ND

PIPESTEM

BOWMAN-HALEY

SOUTH DAKOTA

Pierre, SD

LAKE OAHE

SOUTH DAKOTA

Pierre, SD

BIG BEND

Lake Sharpe

COLD BROOK

COTTONWOOD

Lake Francis Case

FORT RANDALL

GAVINS POINT

Lewis and Clark

Lake

NEBRASKA - WEHRSPANN

Omaha, NE

PAPILLION CREEK

Omaha

SALT CREEK

NEBRASKA - KEARNEY

Kearney, NE

NEBRASKA

COLORADO

LITTLETON, CO

TRI-LAKES

TEXAS

OMAHA

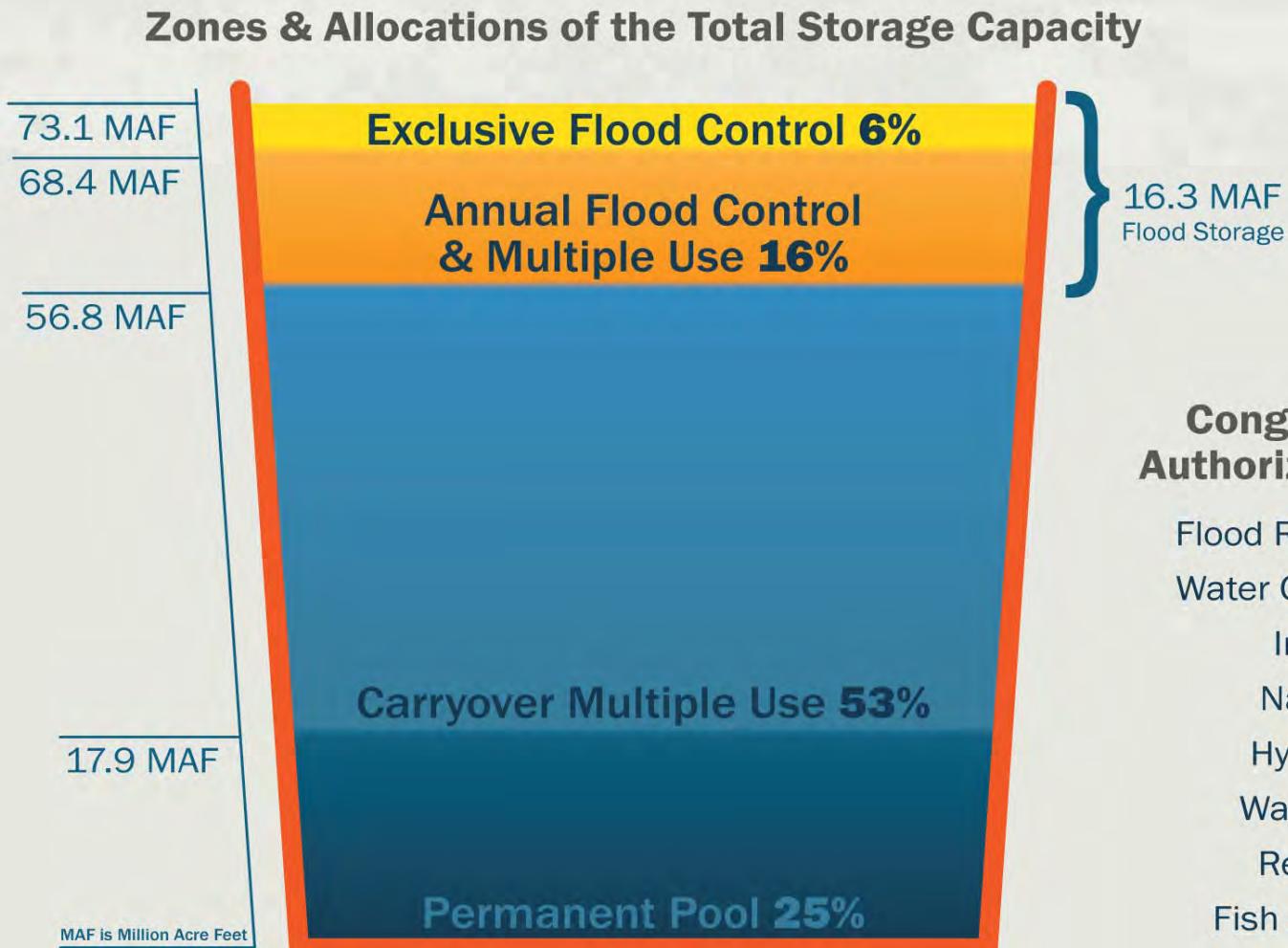
Metropolitan

Area



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# Missouri River Main Stem Reservoir System



## Congressionally Authorized Purposes

- Flood Risk Reduction
- Water Quality Control
- Irrigation
- Navigation
- Hydropower
- Water Supply
- Recreation
- Fish and Wildlife

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# Draft Surplus Water Report Overview

- Plan Formulation Process
  - ▶ Specify water and related land resources problems and opportunities
  - ▶ Inventory and forecast existing conditions
  - ▶ Formulate alternative plans
  - ▶ Evaluate alternative plans
  - ▶ Compare alternative plans
  - ▶ Select the recommended plan



# Draft Surplus Water Report Overview

## Total Estimated Demand for Surplus Water from the Projects

Dam/Reservoir	Existing Demand (AF/Year)	Projected Demand (AF/Year)	Total Demand (AF/Year)	Equivalent Storage (AF)
Fort Peck/ Fort Peck Lake	6,302	630	<b>6,932</b>	17,816
Oahe/ Lake Oahe	52,106	5,211	<b>57,317</b>	147,305
Big Bend/ Lake Sharpe	56,607	5,661	<b>62,268</b>	160,028
Fort Randall/ Lake Francis Case	25,430	2,543	<b>27,973</b>	71,890
Gavins Point/ Lewis and Clark Lake	25,843	2,584	<b>28,427</b>	73,058
Garrison/Lake Sakakawea	57,837	47,163	<b>100,000</b>	257,000



# Draft Surplus Water Report Overview

- Analysis of alternatives
  - ▶ Temporarily provide water from storage dedicated to other authorized purpose
  - ▶ Utilize water from upstream and downstream source (Missouri free flowing segments)
  - ▶ Groundwater withdrawal
  - ▶ Other surface water sources
  - ▶ Conservation/reuse
- Alternatives Studied
  - ▶ No Action (groundwater)
  - ▶ Proposed Action (surplus water from reservoir)



# Draft Surplus Water Report Overview

- Economic Analysis
  - ▶ Benefits foregone, revenues foregone, replacement cost, updated cost of storage
  - ▶ Storage vs. yield
    - ❖ Dividing the carryover multiple use storage (39 million acre-feet) by the net yield (15.2 million acre-feet) results in a storage-yield ratio of 2.57
    - ❖ Important to understand that 1 acre-feet of yield does not equal 1 acre-feet of storage
  - ▶ Updated cost of storage



# Draft Surplus Water Report Overview

## ■ Cost/Price Determination

Dam/Reservoir	Cost (per AF of Yield)	Cost (per AF of Storage)
Fort Peck/ Fort Peck Lake	\$38.59	\$15.02
Oahe/ Lake Oahe	\$17.19	\$6.69
Big Bend/ Lake Sharpe	\$36.65	\$14.26
Fort Randall/ Lake Francis Case	\$51.86	\$20.18
Gavins Point/ Lewis and Clark Lake	\$174.66	\$67.96
Garrison/Lake Sakakawea	\$20.91	\$8.13

## ■ Cost/Price Recommendation



# Draft Surplus Water Report Overview

- Chapter 1. Introduction
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# Draft Surplus Water Report Overview

- Letters to Tribes
- Letters to Governors
- Agency Coordination Meetings



# Draft Surplus Water Report Overview

- Chapter 1. Introduction
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- Chapter 4. Plan Implementation
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# Draft Surplus Water Report Overview

- Purpose of Study
  - ▶ Identify and quantify whether surplus water is available in the project as identified in Section 6 of the 1944 Flood Control Act that the Secretary Army may use to execute surplus water agreements
    - ▶ Sufficient surplus water is available to provide
      - ▶ 6,932 AF/year (yield) from Fort Peck/ Fort Peck Lake
      - ▶ 57,317 AF/year (yield) from Oahe/ Lake Oahe
      - ▶ 62,268 AF/year (yield) from Big Bend/ Lake Sharpe
      - ▶ 27,973 AF/year (yield) from Fort Randall/ Lake Francis Case
      - ▶ 28,427 AF/year (yield) from Gavins Point/ Lewis and Clark Lake
  - ▶ Determine whether use of surplus water is most efficient method of meeting M&I water needs
    - ▶ It is the most efficient



# Draft Surplus Water Report Overview

- Chapter 1. Introduction
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# Draft Surplus Water Report Overview

- Surplus water, in the quantities identified, be approved and made available for municipal and industrial (M&I) water supply at each of the reservoirs; and
- Rulemaking, according to the Administrative Procedure Act, be conducted to establish a nationwide policy for uses and pricing of surplus water for M&I water supply under Section 6 of the Flood Control Act of 1944



# Draft Surplus Water Report Overview

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# Draft Surplus Water Report Overview

- National Environmental Policy Act (NEPA) agencies must make informed decisions
  - Agencies must use a specific environmental planning process (NEPA) that is interdisciplinary, considers reasonable alternatives, and includes documentation for public review
  - Environmental Assessment (EA) is a document prepared for an action... where the significance of the social, economic, and environmental impacts are evaluated
  - Agencies must make diligent efforts to inform and involve the public in this NEPA process



# Draft Surplus Water Report Overview

- Summary of Environmental Impacts of Proposed Alternative
  - ▶ Depletion Impacts
    - Due to very small change between Proposed Action and No Action Alternatives, no measurable change is expected to the environment
  - ▶ Cumulative Effects
    - No discernible change to the authorized purposes of flood control, navigation, hydropower, water supply or recreation



# Presentation

- Part I
  - ▶ Water Supply Evolution in the Missouri River Basin
- Part II
  - ▶ Draft Surplus Water Report Overview
- Part III
  - ▶ M&I Reallocation Study
    - Study Area
    - Purpose of the Study
    - Study Components
    - Authorities
    - Proposed Schedule
    - Public Involvement



# M&I Reallocation Study Area



# M&I Reallocation Study Purpose

The Missouri River Municipal & Industrial Water Storage Reallocation Study will systemically and comprehensively examine whether some amount of the **storage** originally included in the U.S. Army Corps of Engineers' mainstem Missouri River reservoirs for authorized project purposes may be allocated solely to municipal and industrial (M&I) water supply. The study will also examine the effects of such a reallocation on the authorized purposes and operations of the mainstem reservoirs.



# M&I Reallocation Study Components

- Identify current and future demand and potential need for reallocated storage to support the demand.
- Evaluate impacts on project purposes. Are they significant?
- Determine environmental effects on proposed actions and whether mitigation would be required.
- Determine price to be charged purchasers of storage.
- Determine appropriate compensation, if any, to lawful existing users.
- Alternative sources of water supply will be evaluated and compared to the use of Missouri River storage.



# M&I Reallocation Study Authority

Section 216 of the 1970 Flood Control Act (Public Law 91-611, as amended) provides the “general authority for the Secretary of the Army for Civil Works [ASA(CW)] to review operations of completed projects when found advisable due to changed **physical, economic or environmental** conditions.”



# M & I Reallocation Study

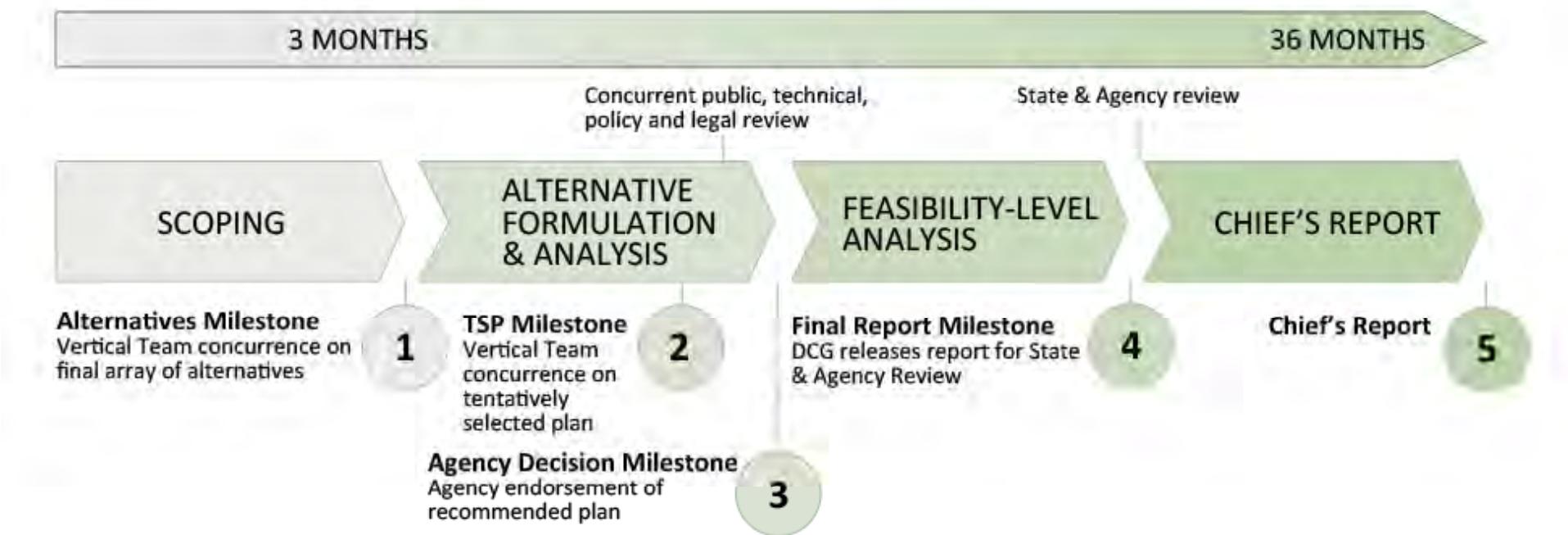
## Authority for Storage

The Water Supply Act of 1958 (Title III, P.L. 85-500, as amended) authorizes the Corps' Assistant ASA(CW) to include storage for M&I water supply storage space in any Corps of Engineers reservoir provided that the modification does not seriously affect authorized purposes or involve major structural or operational changes.

- ▶ Water Supply is state/local responsibility
- ▶ Includes M&I storage in new reservoirs
- ▶ Allows storage in existing projects to be allocated to M&I
- ▶ All costs to be repaid by local Sponsor in reallocation
- ▶ If reallocation to M&I affect other authorized purposes, congressional authorization is required



# M&I Reallocation Study Proposed Schedule



# M&I Reallocation Study

## Public Involvement

- Coordination throughout the Study
  - ▶ Various communications including: interim product reviews, public and tribal meetings, web site, press releases
- Website will be developed to provide information on:
  - ▶ Public and tribal meeting announcements
  - ▶ General descriptive information and documents available for download
  - ▶ Progress and status information as study moves forward



# Agenda

- Open Forum
- Welcome
- Presentation
- **Public Comment**



# Public Comment

- **Ground Rules**

- ▶ Those who wish to comment must sign up at the front desk prior to speaking and sign a numbered comment card
- ▶ Elected officials will speak first then the general public
- ▶ Numbers will be called. Come up to the microphone, state your name, and please spell your first and last name
- ▶ Please limit comments to 3 minutes or less out of respect for others who wish to speak

